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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,461	01/27/2004	Ting-Wen Su	TOP 280	1176

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EXAMINER	
GUPTA, PARUL H	
ART UNIT	PAPER NUMBER
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/18/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/764,461	SU ET AL.	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-27 are pending for examination as interpreted by the examiner. The IDS filed on 10/27/05 and 11/22/05 were considered.

Specification

2. The disclosure is objected to because of the following informalities: minor typographical errors such as in the abstract and paragraph 0018, "in responsive to a first input signal" should read --in response to a first input signal--, in paragraph 0005 the word "formed" has been misspelled by placing an extra space between the r and the m, in paragraph 0040 there should be a space between the B and the "and", and in paragraph 0043, "forth operation circuit 54" should read --fourth operation circuit 54--. Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claims 4, 8, 10, 11, 13, and 16 are objected to because of the following informalities: minor typographical errors such as the use of "generated" instead of --generating—in claims 4 and 10, the use of "derived" instead of --derive—in claim 8, the use of "substantial" instead of --substantially—in claims 11 and 16, the fact that "'responsive to a first input signal" should read --response to a first input signal—in claim 13, and the use of the phrase "a factor substantially equal to..." with nothing explaining what the factor represents in claim 20. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimoda et al. in view of Maegawa, US Patent 7061845.

Regarding claims 1, 7, and 13, Shimoda et al. discloses a method and apparatus (shown in figure 2) for generating a wobble signal of an optical-electronic system, comprising: a first operation unit for generating a reference signal by processing a first input signal and a second input signal that are derived from a plurality of continuous light signals reflected from an optical storage medium (column 9, lines 38-54); and using a processing unit to process the reference signal to generate the wobble signal (shown as element 22 of figure 2), wherein the plurality of continuously reflected light signals is used to derive the first input signal and the second input signal for generating the reference signal even when the optical-electronic system is recording data onto the optical storage medium (abstract). Shimoda et al. does not but Maegawa teaches attenuating (done by elements 22a and 22b) the first and second input signals used to generate the reference signal. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of attenuating the output of the photo detectors before processing them as taught by Maegawa into the system of

Shimoda et al. The motivation would be to obtain the desired gain based on the operational state (column 7, lines 1-18 of Maegawa).

Regarding claim 2, Shimoda et al. discloses in column 9, lines 38-54 the method for generating a wobble signal as claimed in claim 1, wherein the plurality of light signals comprises a first light signal (S_A), a second light signal (S_B), a third light signal (S_C), and a fourth light signal (S_D) that are all used for generating the reference signal continuously.

Regarding claims 3 and 9, Shimoda et al. in view of Maegawa teaches the method for generating a wobble signal as claimed in claims 1 and 7, respectively. Maegawa further teaches in figure 3 and explains in column 7, lines 1-8 the method further comprising a step of attenuating the first input signal and the second input signal before the first input signal and the second input signal (done by elements 22a and 22b) being used to generate the reference signal. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of attenuating the output of the photo detectors before processing them as taught by Maegawa into the system of Shimoda et al. The motivation would be to obtain the desired gain based on the operational state (column 7, lines 1-18 of Maegawa).

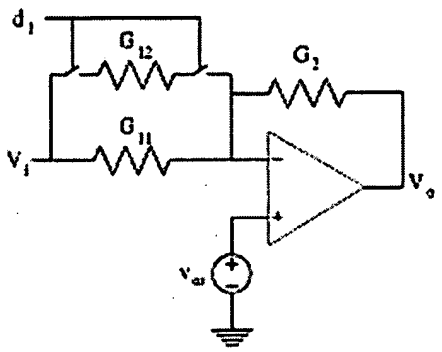
Regarding claims 4, 10, and 27, Shimoda et al. discloses the method and apparatus (shown in figure 2) for generating a wobble signal as claimed in claims 3, 9, and 23, respectively, further comprising a step of amplifying the reference signal before the reference signal, or first input signal and the second input signal, being processed for generating the wobble signal (column 6, lines 18-23) by using an amplifier (element

21 of figure 2) coupled between the first operation unit (element 14 of figure 2) and the processing unit (element 22 of figure 2).

Regarding claims 5, 11, and 16, Shimoda et al. discloses the method and apparatus for generating a wobble signal as claimed in claims 1, 7, and 13, respectively, wherein the reference signal is substantially a multiplication of a factor (amplification done by element 21 of figure 2) and a difference between the first input signal and the second input signal (equation given in column 9, line 46).

Regarding claims 6, 12, and 17, Shimoda et al. teaches the method and apparatus for generating a wobble signal as claimed in claims 5, 11, and 16, respectively. Shimoda et al. does not but Maegawa teaches the method and apparatus, wherein the factor is a substantial ratio of resistances that are used for attenuating the first input signal and the second input signal. Elements 22a and 22b of figure 3 (typical example of a VGA is shown in the diagram below) are used for attenuating the first and second input signals in the given reference. Thus, the factor by which the reference signal depends of the input signals must be a ratio of the resistances (shown by transfer function below) since the only other process done on the signal is that performed by the subtractor in element 24 of figure 3.

$$V_{out} = -\frac{G_{11}+d_1G_{12}}{G_2}V_{in} + (1 + \frac{G_{11}+d_1G_{12}}{G_2})V_{OS}$$



(a)

Regarding claims 8 and 14, Shimoda et al. discloses the method and apparatus for generating a wobble signal as claimed in claims 7 and 13, respectively, wherein the plurality of continuous light signals comprises a first light signal (S_A), a second light signal (S_B), a third light signal (S_C), and a fourth light signal (S_D) that are all used to derive the first input signal and the second input signal for generating the reference signal continuously (column 9, lines 38-54).

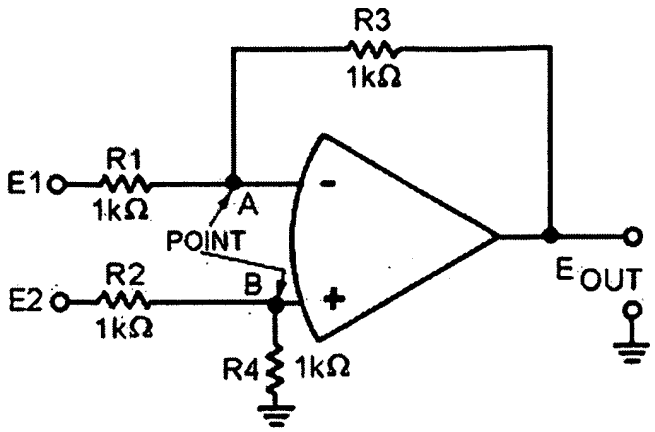
Regarding claim 15, Shimoda et al. discloses in the equation given in column 9, line 46 the wobble signal generating apparatus as claimed in claim 14, wherein the first input signal is substantial a summation of the first light signal (S_A) and the fourth light signal (S_D) and the second input signal is substantial a summation of the second light signal (S_B) and the third light signal (S_C).

Regarding claim 18, Shimoda et al. discloses the wobble signal generating apparatus as claimed in claim 13, wherein the first operation unit (band pass filter of column 6, lines 22-23) comprises a non-inverting terminal, an inverting terminal and an output terminal, the non-inverting terminal receives the first input signal and the

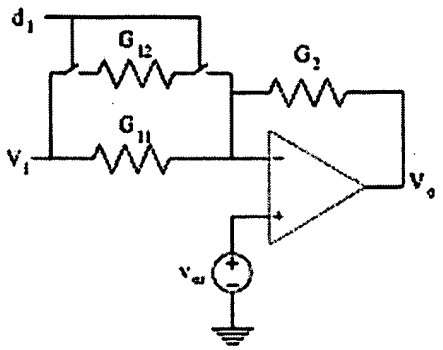
inverting terminal receives the second input signal for generating and delivering the reference signal via the output terminal (used in the equation of column 9, lines 47-50).

Regarding claim 19, Shimoda et al. teaches the wobble signal generating apparatus as claimed in claim 18. Shimoda et al. does not but Maegawa teaches in figure 3 the apparatus further comprising: a first attenuator (22a) coupled with the first operation unit (24) for attenuating the first input signal; and a second attenuator (22b) coupled with the first operation unit (24) for attenuating the second input signal, wherein the first input signal and the second input signal are attenuated before being used for generating the reference signal (column 7, lines 19-28). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of attenuating the output of the photo detectors before processing them as taught by Maegawa into the system of Shimoda et al. The motivation would be to obtain the desired gain based on the operational state (column 7, lines 1-18 of Maegawa).

Regarding claim 20, Maegawa teaches the wobble signal generating apparatus as claimed in claim 19, further comprising an extra attenuator (resistor inherently part of element 24 of figure 3) coupled between the output terminal and one of the non-inverting terminal and the inverting terminal of the first operation unit (element 24 of figure 3), wherein a factor substantially equal to a ratio derived from characteristic values of the extra attenuator, the first attenuator and the second attenuator. The diagram below represents a subtractor similar to element 24 of figure 3. The extra attenuator is the element labeled R3 in the diagram, where E_{OUT}=E2-E1.



Regarding claim 21, Maegawa teaches the wobble signal generating apparatus as claimed in claim 20, wherein the extra attenuator, the first attenuator and the second attenuator are all resistors. The given reference explains that variable gain amplifiers (shown below) are used as attenuators. As variable gain amplifiers have an internal resistance (shown as G_2, G_{11}, and G_{12}), they are equivalent to using resistors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of attenuating the output of the photo detectors using resistors before processing them as taught by Maegawa into the system of Shimoda et al. The motivation would be to obtain the desired gain based on the operational state (column 7, lines 1-18 of Maegawa).

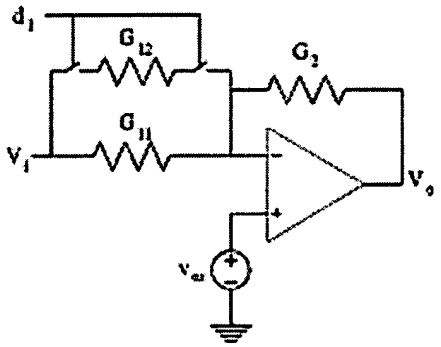


(a)

Regarding claim 22, Shimoda et al. teaches the wobble signal generating apparatus as claimed in claim 13 Shimoda et al. does not but Maegawa teaches in figure 3 the apparatus wherein the first operation unit (24) comprises an inverting terminal, a non-inverting terminal and an operational output terminal, the inverting terminal receives the first input signal and the non-inverting terminal receives the second input signal for generating and delivering the reference signal via the output terminal. The given unit is a subtractor (column 7, lines 19-23), which always has the configuration given.

Regarding claim 23, Maegawa teaches in figure 3 the wobble signal generating apparatus as claimed in claim 22, further comprising: a second operation unit (22a, a diagram of which is shown below) couples to the first operation unit (24), comprising a grounding non-inverting terminal, a non-inverting terminal, and an output terminal, wherein the non-inverting terminal receives some of the plurality of reflected light signals for generating and delivering the first input signal via the output terminal; and a third operation unit (22b, same circuit shown below) couples to the first operation unit (24), comprising a grounding non-inverting terminal, a non-inverting terminal, and an

output terminal, wherein the non-inverting terminal receives others of the plurality of reflected light signals for generating and delivering the second input signal via the output terminal. In the given reference, elements 22a and 22b actually each comprise one grounding non-inverting terminal and one inverting terminal, although they perform the same function. Official notice is taken that it is well known in the art to use two non-inverting terminals to perform the same function as the inverting amplifiers of Maegawa. It would be obvious to use this circuit because it is an art recognized equivalent circuit that is used in the same environment, for the same purpose, to achieve the same result.



(a)

Regarding claim 24, Maegawa teaches in figure 3 the wobble signal generating apparatus as claimed in claim 23, further comprising: a first attenuator (22a) coupled with the first operation unit for attenuating the first input signal; a second attenuator (22b) coupled with the first operation unit for attenuating the second input signal; a third attenuator (resistor inherently part of element 22a) coupled with the second operation unit (22a) for attenuating the plurality of reflected light signals; and a fourth attenuator (resistor inherently part of element 22b) coupled with the third operation unit (22b) for attenuating the plurality of reflected light signals, wherein the first input signal and the

second input signal are attenuated before being used for generating the reference signal, and the plurality of the reflected light signals are attenuated before being used for generating the first and the second input signal (done by elements 22a and 22b).

Regarding claim 25, Maegawa teaches the wobble signal generating apparatus as claimed in claim 24, further comprising: a first extra attenuator (resistor inherently part of element 24 of figure 3) coupled between the output terminal and one of the non-inverting terminal and the inverting terminal of the first operation unit; a second extra attenuator (resistor inherently part of element 22a of figure 3) coupled between the output terminal and the non-inverting terminal of the second operation unit (22a); and a third extra attenuator (resistor inherently part of element 22b of figure 3) coupled between the output terminal and the non-inverting terminal of the third operation unit (22b), wherein a factor substantially equal to a ratio derived from characteristic values of the first extra attenuator, the second extra attenuator, the third extra attenuator, the first attenuator, the second attenuator, the third attenuator, and the fourth attenuator.

Regarding claim 26, Maegawa teaches the wobble signal generating apparatus as claimed in claim 25, wherein the first extra attenuator, the second extra attenuator, the third extra attenuator, the first attenuator, the second attenuator, the third attenuator, and the fourth attenuator are all resistors. The given reference explains that variable gain amplifiers are used as attenuators. As variable gain amplifiers have an internal resistance, they are equivalent to using resistors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of attenuating the output of the photo detectors using resistors before processing them as taught by

Maegawa into the system of Shimoda et al. The motivation would be to obtain the desired gain based on the operational state (column 7, lines 1-18 of Maegawa).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 9:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
12/11/06

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